
Subject: Re: Getting mean from HDF SD files - stack in envi or read into IDL array?
Posted by [bulrushmower](#) on Sat, 05 Jul 2008 21:32:48 GMT

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On Jul 5, 2:45 pm, bulrushmo...@gmail.com wrote:

> On Jul 5, 1:58 pm, bulrushmo...@gmail.com wrote:

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>> On Jul 5, 10:46 am, kathryn.davi...@googlemail.com wrote:

>

>>> On Jul 5, 4:33 pm, bulrushmo...@gmail.com wrote:

>

>>>> On Jul 4, 8:41 am, kathryn.davi...@googlemail.com wrote:

>

>>>> > Hi

>

>>>> > I am extremely new to IDL (2 weeks!) and have previously only used

>>>> > envi on a small scale.

>

>>>> > I want to read one SD dataset from from a each of a huge number of

>>>> > MODIS files and having looked at IDL and envi batch routines can't

>>>> > decide which is the best way. Bear in mind my limited knowledge and a

>>>> > very short timeframe.... Should I write an envi batch programme and

>>>> > create a big (3000bands +) envi file or should I put straight into the

>>>> > an IDL array. I need to get a mean value (one image or array) and

>>>> > even if it is easier in envi batch mode, would the routine

>>>> > ENVI_SUM_DATA_DOIT with the Mean option deal with the missing

>>>> > values???

>

>>>> > Looking at IDL I have managed to open HDF file from command line, read

>>>> > in appropriate data set to an array but how then could I build 3D

>>>> > array from absolutely loads of 2D arrays.

>

>>>> > Big questions I know - I am desperate to do this in a short time.

>

>>>> > Any help on any aspect much appreciated.

>

>>>> > K

>

>>>> Tell me more about how many bands you have in HDF file and how many

>>>> bands you want to read into IDL?- Hide quoted text -

>

>>>> - Show quoted text -

>

>>> Well I am going to be using around 3-4000 MODIS HDF files but I only

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>>> want one band (the first) from each i.e. the Land Surface
>>> Temperature. Since my last post I have thought about creating a huge
>>> multiband file in ENVI and then exporting as a variable to IDL (if the
>>> ENVI_SUM_DOIT doesn't work for the mean, as it may not deal with
>>> missing values very well, I need them to not be counted as opposed to
>>> counting as zero). However that means extracting the SD dataset from
>>> all of the HDF files, converting them to ENVI standard files to build
>>> multi-band image. I hope the data values are not corrupted by being
>>> converted to ENVI standard. Also I could create an image stack in
>>> iIMAGE or mess about with iDataManager in some way but they do not
>>> seem to like reading ENVI standard files and keep asking me to fill in
>>> binary information - will the data values still be OK?
>
>>> Thanks
>
>>> Kathryn- Hide quoted text -
>
>>> - Show quoted text -
>
>> The simplest way to do it:
>> I am assuming you have IDL and ENVI, initiate batch mode by doing the
>> following
>
>> 1. define the file directory
>> 2. read them into IDL using envi_open_data_file
>> 3. get their mean by
>> 4. print them into a txt file
>
>> Try this code
>
>> Pro Mean_HDF
>>   envi, /restore_base_save_files
>>   envi_batch_init, log_file='batch.txt'
>
>>   ; Open the file directory and search for HDF files to read, then
>> select the directory manually
>>   files=file_search(dialog_pickfile(/dir),'*.HDF', count=numFiles);
>> or you can use files=file_search('D:\MODIS\*.hdf', count=numFiles)
>
>>   ; loop for the whole data set in the directory
>>   FOR K = 0, numFiles-1 do begin
>>       ; get the file name only without file directory for final
>> output filename
>>       fname = file_basename(files[K])
>>       ;select input file directory to subset
>>       hdf_bands = 1 ; determines the HDF dataset bands to read
>
>>       ;start looping through opening bands from HDF

```

```

>>     for i = 0, hdf_bands -1 do begin
>>         envi_open_data_file, files[K], r_fid=fid, /hdf_sd,
>> hdfsd_dataset=i, hdfsd_interleave=0
>
>>         ;query new file for ns, nl, dims;
>>         envi_file_query, fid, dims=dims, bnames=bnames, ns=ns,
>> nl=nl, nb=nb
>>         pos=0
>
>>         ;get the mean of the data
>>         result = MEAN(fid)
>>     endfor
>>     ;if you want to export the results in screen do as
>>     print, results
>>     ;if you want to export them into a txt file
>
>>     OpenW, Lun, 'D:\test.txt', /get_lun
>>     str= fname
>>     printf,lun,str
>> endFOR
>
>> End- Hide quoted text -
>
>> - Show quoted text -
>
> I wonder if you are trying to get mean of each band you read or the
> mean of thousands of bands over each pixel.
> If you want to read just band you can get rid of the inside loop from
> above code. Let me know I will help you figure out.- Hide quoted text -
>
> - Show quoted text -

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If you are looking making a mean of all of the data bands you read,
try the following

Pro Mean_HDF

```

envi, /restore_base_save_files
envi_batch_init, log_file='batch.txt'

; Open the file directory and search for HDF files to read, then
select the directory manually
files=file_search(dialog_pickfile(/dir),'*.HDF', count=numFiles);

out_fid = lonarr(numFiles)
; loop for the whole data set in the directory
FOR i = 0, numFiles-1 do begin
    ; get the file name only without file directory for final
output filename

```

```

    fname = file_basename(files[i])
;select input file directory to subset
    hdf_bands = 1 ; determines the HDF dataset bands to read

;start looping through opening bands from HDF
    envi_open_data_file, files[i], r_fid=fid, /hdf_sd,
hdfsd_dataset=1, hdfsd_interleave=0
;query new file for ns, nl, dims;
    envi_file_query, fid, dims=dims, bnames=bnames, ns=ns, nl=nl,
nb=nb
    pos=0

    out_fid[i]=fid
endFOR
; Set the keywords to process all the
; spectral data.
; Set the keyword COMPUTE_FLAG to
; compute the sum of the bands, the
; sum squared of the bands, the mean
; of the bands, and the standard
; deviation of the bands.
    out_pos = lonarr(numFiles)
    envi_file_query, fid, dims=dims, nb=nb
    out_name = 'Mean.img'
    compute_flag = [1,1,1,1,0,0,0,0]
;
; Call the processing routine to
; sum the data together.
;
    envi_doit, 'envi_sum_data_doit', $
        fid=out_fid, pos=out_pos, dims=dims, $
        out_name=out_name, compute_flag=compute_flag
;
; Exit ENVI
;
    envi_batch_exit

```

End
